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ABSTRACT

In planning for higher education, budgets should be developed that reflect not merely the status quo but rather provide a realistic picture of what occurs relative to what should occur in current programs. This requires setting up an informational framework to provide a mechanism for generating and evaluating alternate ways to achieve objectives--in essence a program budgeting system (PBS). This paper discusses: (1) the basic features of program budgeting; (2) the problem areas in developing a PBS; (3) the need for all levels of the institution to participate in the development of the PBS and the educational effort involved in getting this participation; (4) the necessity of effective coordination of development activities; (5) the need for the development and maintenance of an analytic capability; (6) the need to decide who does what in developing the system; and (7) the first step in academic planning within a PBS at the department, school, college, university, and system level. (AF)

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INTRODUCTION

Planning higher education has been discussed from many points of view, depending on the discipline of the discussant and his role in the process of higher education. The areas of concern range from the voice the student should have in the planning and administration of his education to the merit of alternative ways to finance higher education. Each viewpoint is supported with comfortable and familiar statistics as long as the discussion remains peripheral to the core of the problem--what are the expenditures for higher education buying now and what should be bought in the future? As soon as these questions are raised, these old statistics become relatively irrelevant. The student/teacher ratio, often used as a proxy for faculty productivity, and the space utilization rate, for example, retain some meaning in assessing how well an institution is doing in comparison to similar institutions. But data of this nature do not provide the information base needed for determining a more effective use of the resources allocated to the higher education process.

What is needed is information about what the institution is doing now, in terms of its aims and operational objectives. What programs should be initiated, what programs should be stopped, and what changes should be made in the way of doing business so that these objectives can be achieved more effectively. The systematic generation of this type of information requires a different approach to planning higher education. It means, in most cases, asking questions that may be difficult or painful to answer, and striking out from the secure shelter

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of the traditional measures of success in educational administration. It means taking a look at the future consequences of today's decisions and really looking at the consequences, not just the dollar impact.

This is the most important single fact about typical budget projections; the academic status quo is projected for five or ten years with no major changes in the composition of the university system in terms of Schools, Colleges, Departments, or even courses offered. It is not enough to say that one two-year program will be added each year. Some attempt should be made to consider the future demands for different professional expertise, for different technical skills. Some attempt should be made to assess the direct impact of technology on the instructional methodology (computer-assisted instruction) and the indirect impact of technology on the programs offered (space technology) or on the content of the courses (data processing in the accounting curriculum). The demands of society should be translated into changes in programs offered (ethnic studies or urban planning programs).

These impacts are then the basis for developing a consequence-oriented budget--a budget that provides a realistic picture of what is happening in relation to what should be happening in terms of programs. The programs in the budget are the collection of activities that contribute to meeting its specified objectives. The focus is on identifying these objectives, developing the programs necessary to meet the objectives and evaluating how well the objectives are being met. This informational framework then provides a mechanism for generating and evaluating alternative ways to achieve objectives. It becomes, in essence, a program budgeting system.

#### BASIC FEATURES OF PROGRAM BUDGETING

Program budgeting has been discussed by proponents and opponents to such a great degree that many of its basic characteristics, or features, have been obscured. This is partly due to the fact that program budgeting means quite different things to different people. The list of features shown below provides a means of picturing these

different ideas; the features of program budgeting are rather loosely ranked from the more simple to the more complex.

- o Output-related arrangement of items of expenditure by program.
- o Capital budget items included by program.
- o Extended time horizon for planning.
- o Resource/cost model developed.\*
- o Criteria and measures of effectiveness developed.\*
- o Up-to-date financial plan.
- o Mechanisms for control of funds by program.
- o Organizational alignment by program.

To some people, program budgeting must include all of these features or it is not program budgeting. To others, program budgeting development stops after you have rearranged the expense budget by program, after you have extended the time horizon of the budget, or after you include capital budget items in the display of the expense items.

To many, program budgeting, as a tool for long-range planning, has merit even without the budgetary control aspect--if, and this is an important if, the system-analytical aspect has been developed. The analytical capability need not be sophisticated; it can be as simple and as direct as described throughout this report. Computers and automated management information systems are useful aids but are not prerequisite to achieving a workable system-analytical capability. A great deal can be accomplished with quantified common sense especially when it is tempered with a conscious effort to account for the non-quantifiable facets of both the problem and potential solutions.

Program budgeting, by providing a framework for organizing the educational and operational data of higher education and by providing consistent guidelines for the analysis of the data, offers the means to make the most of the effort expended on educational planning. A program budgeting system encompassing the first six features of the

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\* These features are, of course, the basic tools needed for the systematic analysis of alternative courses of action.

above list can be designed, and effectively used, to achieve this improvement in planning.

#### PROBLEM AREAS IN DEVELOPING A PROGRAM BUDGETING SYSTEM

The features of program budgeting and the impact they collectively have on the design, implementation, and operation of a program budgeting system have been sketched in Fig. 1. The effects of these impacts are grouped into four broad areas: (1) the area of data-related problems, (2) the area of people-related problems, (3) the area of system effectiveness, and (4) the area of the cost of the system. These areas are not contrived, but rather are natural focal points of concern in developing a program budgeting system.

In most cases, additional features cause an increase in all of the problem areas. An exception might be, for example, the successful development of a resource/cost model. In the near-term activity in the development of the program budgeting system, this feature would generate significant data-related and people-related problems--constructing the model demands an extensive data collection effort and, more importantly, model builders are a scarce resource. In the long run, however, the availability of the resource/cost model would enhance the analytical capability of the program budgeting staff. Less time would be required to examine the consequences of more what-if questions and it is possible that a better quality of analysis would be attained from the same data and from the same staff. The end result would be, in most cases, fewer data-related problems and fewer people-related problems.

The reality of impact in the areas of effectiveness and cost is relatively clear, but its actual measurement, in the cause and effect sense, is the subject of current and extensive investigation. For this reason, the emphasis will be on the problems that arise from the data requirements for a program budgeting system and on the problems that are people-related in nature.

By its very purpose, a program budgeting system is a gigantic consumer of data. These data are of concern to all within the institution. The sources of data and the means of collection and analysis

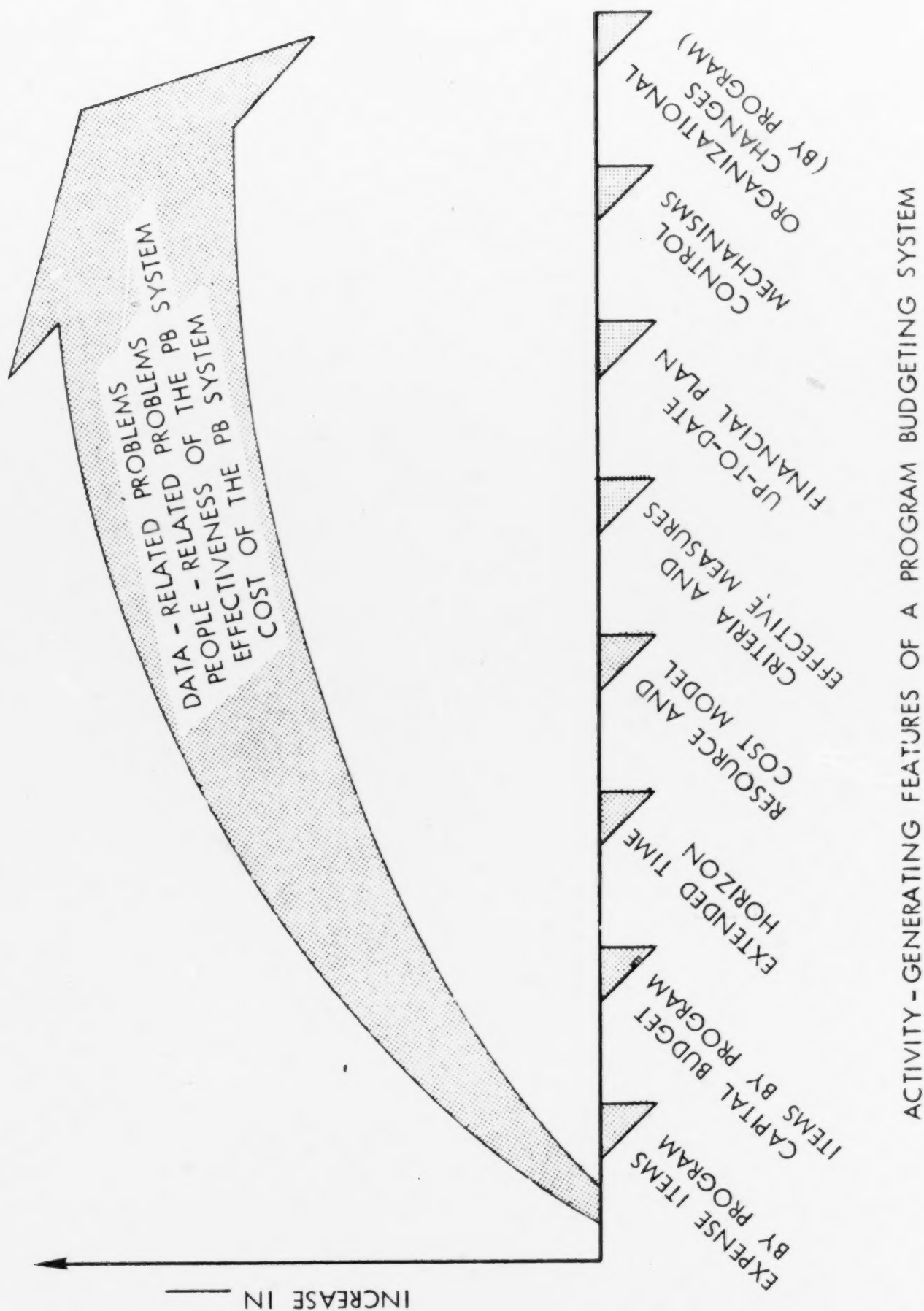


Fig. 1--The impact of features of a program budgeting system on its design, implementation, and operations

are, of course, obvious concerns. Not so obvious, but just as real, are the fears of the individuals supplying the data about the intended uses of the data. In any attempt to plan--or even understand what is going on--data about people, the things they use, how they use them, and how well they use them are necessary. The result is that the data-related problems are closely related to the people-related problems.

Data-related problems are usually more direct and mechanical and their solutions can be sought in a direct and mechanical manner. People-related problems, on the other hand, are often subtle and pervasive; their solution demands a different approach. A basic component of this different approach is "knowledge"--the catalyst in the process of developing a program budgeting system.

#### PROGRAM BUDGETING EDUCATIONAL EFFORT

All levels of the institution should participate in the development of the program budgeting system. This means that all personnel should know what is happening; they should know what their role is in the development of the system; they should know what demands the system might make on their operations; and they should be encouraged to have a voice in the development of the system. Knowledge of this nature demands an educational effort that parallels the development of the system. This is true whether or not the development of the system is being done by persons within or outside the institution.

The extent of the educational effort should be broad enough to include all levels of the institution; it should not be limited to the top administrative staff. Deans, Department Chairmen and all faculty have a role in the development of the program budgeting system. Their specialized knowledge of their field and potential changes is necessary in projecting programs. In addition, as a group they contribute their expertise to the system-analytical aspect of program budgeting that makes the system more than just another accounting scheme. The effectiveness of their contribution can be increased if the educational effort includes information about their interface with the design and operation of the program budgeting system.

#### COORDINATION OF DEVELOPMENT ACTIVITIES

Another facet of the educational effort that parallels the development of the program budgeting system deals with coordinating the activities of development. It is necessary to spell out who does what and with what authority. For the most part, this is a people-related problem area. And again knowledge serves as the catalyst in the process; the more the members of the institution know about what is expected of them, and why, the less are they inclined to jealously guard their bailiwick of information or to wait for the finished product and then react. They all become participants in the development of the system and, through this participation, increase the likelihood that they will be users of the operational system.

In this coordination effort it is logical to identify the main and supporting cast of characters. It is suggested that once the group has been designated, every attempt be made to quite frankly publicize its existence, to define its authority and to support its task. The group should be clearly visible within the organization, and its members should cut across organizational lines. In addition, the group should be recognized as having some operational life after the design and implementation phases of the program budgeting system; a temporary committee has rather obvious shortcomings. One of the main functions of the group would be to organize the educational effort described earlier.

Another function of the group (and also part of the educational effort) is the development of the techniques that enable the administrators to use the program budgeting system output. This means a conscious effort to spell out the role of program budgeting in the decisionmaking process. The questions of how the program budgeting system will be used, by whom it will be used, and for what purpose, must be answered very early in the development stage.

#### DEVELOPING AN ANALYTICAL CAPABILITY

There is another problem area that is partly data-related, but for the most part is people-related. That is the development and

maintenance of an analytical capability. In most current efforts to develop a program budgeting system, the lack of an analytical capability has been identified as a major problem. The best way to solve the problem is still largely a matter of conjecture. One possible approach might be the most direct--just begin, going from the more simple to the more complex techniques and, in the process, learn. Concurrent with this approach, two activities would be carried on. One activity would be the initiation of a training program. The other activity would be an attempt to separate those analytical techniques required for the routine operation of the program budgeting system from those required for the development of supporting models (student flow model, for example) and of estimating relationships. Those techniques required for the routine operation of the program budgeting system would be the first area of study in the training program. This effort should be reinforced with the development of the more complex techniques by an analytical staff serving many institutions, such as WICHE (Western Interstate Commission for Higher Education). There are, of course, many trade-offs within the different approaches to developing and maintaining an analytical capability. The point is that solutions to the problem are well within the state of the art.

#### ACTIVITY AREAS IN DEVELOPING THE SYSTEM

For discussion purposes, a distinction has been made between data-related problems and people-related problems; this distinction remains a useful guide in seeking solutions to the overall problems of developing a program budgeting system. It should be obvious that solving the people-related problems as a first order of business would have a direct effect on the magnitude of the data-related problems.

In the schematic of activity areas in the development of a program budgeting system shown in Fig. 2, it is rather easy to trace the origin and flow of data requirements. Less clear, however, is the "who does what" requirement so necessary to the effective development of a program budgeting system. In some respects, the people who possess the data can be identified as the starting point for the "who

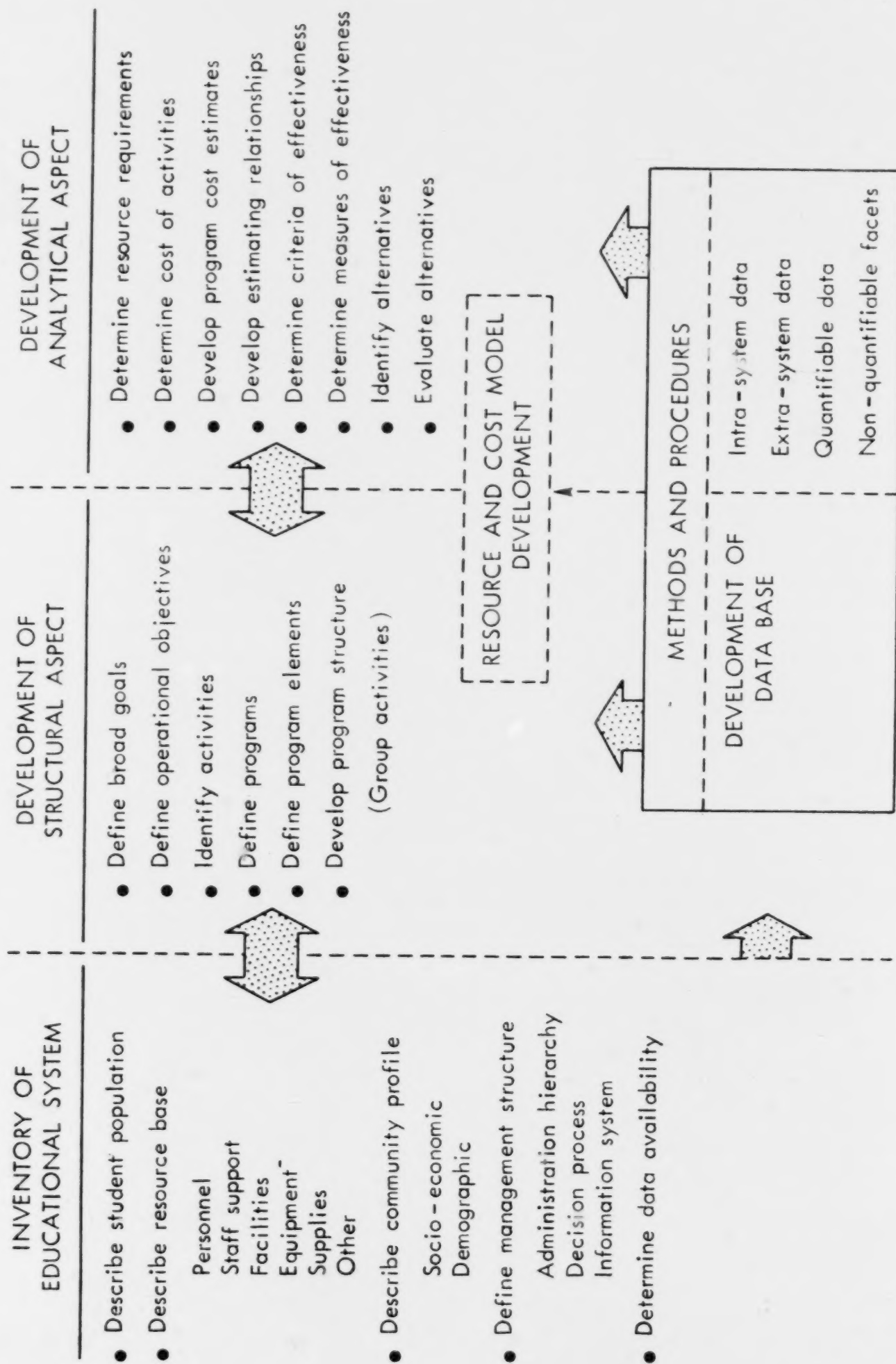


Fig. 2--Schematic of activity areas in the development of a program budgeting system

does what" requirement; the important idea is to bring these individuals into the development of the system at an early time.

For example, there should be lines of communication set up between the individuals concerned with the development of curricular changes, individuals concerned with evaluation of educational programs, and individuals with knowledge of the resources needed to achieve a particular activity or program change. If these lines of communication are opened early enough, fears about the uses to which the data are to be put and fears about program budgeting, in general, can be greatly reduced; all individuals are participating in an endeavor they understand.

Not mentioned explicitly, but certainly needed, would be the line of communication to the administrative staff--the level responsible for ensuring that the particular activity or program change is, in fact, a means to accomplish either an operational objective or a broad goal. This line of communication, as well as all lines of communication among the activity areas of Fig. 2, is a two-way communication line. The lower levels of administration, which have the knowledge to generate alternatives, must be aware of the objectives of the institution and, conversely, the top-level administrative staff must be provided with the output of the analytical effort of the lower levels. It is through this process that the evaluation and selection of alternatives is accomplished.

If we were to rearrange the activity areas of Fig. 2 to reflect the "who does what" requirement, the activities under the development of the structural area would be primarily the concern of the top-level decisionmakers and planners; efforts by individuals in the other activity areas would flow to this structural area. In a sense, all the other activities would be supportive to the activities in the structural area. This, of course, would be during the developmental phase of the program budgeting system. In the operational system all activities would be part of the decisionmaking process, part of the program budgeting process.

FIRST STEP IN ACADEMIC PLANNING WITHIN A  
PROGRAM BUDGETING SYSTEM

In the introduction, the core of the planning problem was identified as determining what the educational resources for higher education were currently buying and attempting to rationally decide what should be bought. It should be clear that some means should be provided to encourage a faculty voice in these decisions. If the budget game is played on the basis of numbers alone, the academic staff is relatively voiceless in the planning process. As Rathbun and Stein state: "It is hardly an exaggeration to describe the typical college or university budgeting process in the following sentence: It asks each responsible officer what he needs, cuts that request by whatever amount is needed to keep the institution from going broke and ships the budget to the printer."<sup>\*</sup> This is the essence of the numbers game in budgeting. What is needed is a more rational mechanism--some way to link the ideas of the academic staff with the facts and figures available to the top-level administrator.

Within a program budgeting system as described briefly in this paper, there is a direct link between the administrator and staff that has the expertise to generate alternative courses of action from the academic point of view. This link is a request for funds to support a program that has been defined. Defined in this sense means that the program has been considered in terms of its impact on the objectives of the institution and in terms of its impact on the financial status of the institution. The proposed program is not just a wish-list item of the it-would-be-nice-to-have category. It is, rather, a well thought-out proposal with enough justification to provide a basis for its selection (or rejection) in the competition for the always scarce resources.

The first step in making this link viable is a request to the total faculty as well as all the administrative levels. This request

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<sup>\*</sup> Rathbun, Daniel and Herb Stein, "How to Make Your Budget Work for You," College Management, May 1969, pp. 61-65.

is made after the staff has been informed of the program budgeting effort in general and about the specific goal of the program budgeting system. Enough information must be provided so as to insure that the request will not be treated as just another request to be filled out once and forgotten. This is important. The feeling that filling out the request for information will have some impact must be conveyed. This feeling may come only with time; on the other hand, advance publicity could greatly increase the seriousness with which the request is treated and, thus, increase the realism of the responses.

The next problem has to do with the information requested. Instead of describing the kinds of responses desired, it might be better to provide general guidelines and then to list some mind-joggling questions. The general guidelines, of course, would be provided by the top-level administrator. The content of the format should include the following items. (Items more specific to current problems should also be included.)

Introductory Statement. Describe the nature of the activities of your organizational unit in the 1975-1980 time period. At this time do not consider the projected enrollment, the means of providing staff or the cost of achieving the described activities.

At the Department Level: What courses should be added? How should the course material be presented? In the same manner as today? Should some mode of computer-assisted instruction be considered for part of the instructional load? Are any changes possible in the relationship of your Department with other Departments? Are there any areas of organized research to be opened for your Department? Does your Department have any potential role in an expanding public service activity? Should new courses be added to meet the changing social problems five or ten years from now? What courses should be dropped or updated? Do you see ways in which a central data processing system computing center could be useful to the academic aspect of your Department?

At the School or College Level: Should new Departments be initiated to reflect emerging disciplines? Or to respond to social pressures? Do your Departments make an attempt to cooperate with other

Departments in maintaining interdisciplinary communication? What steps could be taken to provide for this interaction? Would you recommend the strengthening of any specific Department at the possible expense of another? Should new institutes of research or bureaus of public service be set up? What should the relationship of individual Departments or of several Departments be to these institutes or bureaus? What voice should the students have in the construction of curricula and in the instructional methods used? How will the relevance of the curriculum be maintained?

At the University or System Level: Does the projected geographic distribution of university system components provide an effective availability of education to most of the population? Should this be a goal? What programs can be expanded or added to attract the desired quality of students? What programs are to be provided to retain state educated graduates in the state? What will be the demands for continuing professional education in 1975 and in 1980? How may these demands be met? Are the goals and objectives realistic? Can they be met with the resources available or should they be modified? Do the activities of the university system as described in 1975 and 1980 by the components of the system contribute toward these goals? If not, what changes should be made?

The activities described in response to these questions are translated into their impact on resources in terms of staff, space, equipment, and other resources. This is aggregated into the first-cut program budget. It is not really as arduous a task as it seems on the surface. After this is done, and the gaps, inconsistencies, or other problem areas are identified and changed (new responses may be requested), the search for alternative means to achieve the goals of 1975 and 1980 is underway. This search is the major thrust of planning.